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Geographic Information System with Bingmap Using AJAX

Srikanth. P, Deepika. V
M.Tech in CSE Dept , SR Engineering College Warangal, ANDHRA PRADESH, INDIA
Assistant Professor in CSE Dept, SR Engineering College Warangal, ANDHRA PRADESH, INDIA

Abstract
Geographic information technologies on the Internet possess the potential to provide tremendous support to citizens by empowering them with information. Mapping applications on the web such as Google Maps and Bing Maps. These websites give the public access to huge amounts of geographic data. Bing Maps Platform also provides a point-of-interest database including a search capability. Microsoft uses the Bing Maps Platform to power its Bing Maps product. The imagery includes samples taken by satellite sensors, aerial cameras (including 45 degree oblique "bird's eye" aerial imagery licensed from Pictometry International), Street side imagery, 3D city models and terrain.
Key Words:- Geographic information system(GIS)

I.   INTRODUCTION

A geographic information system (GIS) is a system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data. The acronym*GIS* is sometimes used for geographical information science or geospatial information studies to refer to the academic discipline or career of working with geographic information systems and is a large domain within the broader academic discipline of Geoinformatics. In the simplest terms, GIS is the merging of cartography, statistical analysis, and computer science technology.

A GIS can be thought of as a system—it digitally makes and "manipulates" spatial areas that may be jurisdictional, purpose, or application-oriented.

Generally, a GIS is custom-designed for an organization. Hence, a GIS developed for an application, jurisdiction, enterprise, or purpose may not be necessarily interoperable or compatible with a GIS that has been developed for some other application, jurisdiction, enterprise, or purpose. What goes beyond a GIS is a spatial data infrastructure, a concept that has no such restrictive boundaries.

Bing Maps Platform is ageospatial mapping platform produced by Microsoft. It allows developers to create applications that layer location-relevant data on top of licensed map imagery. The imagery includes samples taken by satellite sensors, aerial cameras (including 45 degree oblique "bird's eye" aerial imagery licensed from Pictometry International), Street side imagery, 3D city models and terrain.

Bing Maps Platform also provides a point-of-interest database including a search capability. Microsoft uses the Bing Maps Platform to power its Bing Maps product.

Key features of the Bing Maps Platform include:

- Photo-based images with features such as Street side and 45 degree oblique "bird's eye" views (nominally including 4 views at 90 degree viewpoint increments) that present data in context while simplifying orientation and navigation.
- The ability to overlay standard or custom data points and layers with different themes.
- Building-level geocoding for more than 70 million addresses in the United States.
- Developer support options available.
- Set of APIs available upon which developers can build applications.

The mapping tool used Microsoft ASP.NET, JavaScript/Ajax/XML and Excel/Access/SQL Server in developing the application and Microsoft Bing Map webservice to provide the map data. Microsoft Mapping solutions are used to implement the Bing Map API. The mapping tool can be deployed in corporate supported and/or standardASP.NET environment.

II.   CREATING BINGMAP KEY

Go to the Bing Maps Account Center at https://www.bingmapsportal.com.

- If you have a Bing Maps Account, sign in with the Windows Live ID that you used to create the account.
- If you do not have a Bing Maps Account, click Create, and follow the instructions in Creating a Bing Maps Account.

Select Create or view keys under My Account.
In the Create key box on the My keys page, provide the following information for the application that will use the Bing Maps key:

- Application name: Required. The name of the application.
- Application URL: The URL of the application.

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- Key type: Required. Select the key type that you want to create. The key and application types you choose determine your usage limits. For more information, see the Bing Maps Terms of Use.

Type the characters of the security code, and then click Submit. The new key displays in the list of available keys. Use this key to authenticate your Bing Maps application as described in the documentation for the Bing Maps API you are using.

III. SETTING UP THE BINGMAP

How to add a map using the Bing Maps AJAX control. To use the Bing Maps API, you must obtain a developer key.

```
// Setup the initial Bing Map view.
function GetMap()
{
  map = new
Microsoft.Maps.Map(document.getElementById("ma
pDiv"),
        {credentials: "YOUR BING MAPS KEY",
        center: new Microsoft.Maps.Location(44.88, -
93.218171),
        mapTypeId: Microsoft.Maps.MapTypeId.road,
        zoom: 10});
  Microsoft.Maps.Events.addHandler(map,
"mousemove", function (e)
    {
      var mapElem = map.getRootElement();
      if (e.targetType === "map")
      {
        mapElem.style.cursor = "default";
      } else {
        mapElem.style.cursor = "pointer";
      }
    });
}
```

IV. UPLOADING THE EXCEL SERVICE WEB ACCESS WEB PART

In the prior **CreateStorePins** function, after each pin is added to the map, an event handler is added to the pin to handle the click event. The event handler instructs the Bing Maps AJAX Control to call the function **DisplayStoreData** when a pin is clicked.

There are two primary tasks to perform in this event handler. First, the store ID associated with the pin must be sent to the Excel Web Access Web Part so that the Excel model can be updated. Next, the details associated with the store shown under the map must be refreshed based on the current pin.To update the Excel Web Access Web Part, obtain the range associated with the Store ID (the range is named Forecast!Store) using**getRangeA1Async** and then use the **setValuesAsync** function to send the store ID to the range. The Excel Web Access Web Part automatically recalculates the workbook to show the correct values.

The process that is associated with placing the pins on the map retrieved all of the store information from the workbook and stored it in the storeData script variable. **ShowStoreDetails** loops through the storeData array and locates the required store information, builds an HTML fragment, and then assigns this HTML to the inner HTML of the storeInfo **<div>** element.

V. READ IT

With the Excel Services JavaScript object model, developers can now integrate other web-based assets or services together with an Excel Web Access Web Part using nothing more than JavaScript. The object model enables you to read and write values to Excel ranges and create event handlers for events such as active cell changed, active selection changed, and workbook changed.

In this Visual How To, the Excel Services JavaScript object model is used to create an Excel Services and Bing Maps mashup. The main purpose use of the object model is to read and write values to ranges in the Excel Web Access Web Part.

You can also use the object model to add navigational UI directly to a workbook. By formatting cells to resemble buttons, you can handle the**activeCellChanged** event to detect when the "button" is clicked, and then perform the desired task.

You can also have VBA code that performs the same task so that the user gets the same experience whether they are using the workbook in Excel 2010 with VBA or experiencing it in a browser with the Excel Services JavaScript object model.

VI. IMPLEMENTATION

The Corporate supported/standard ASP.NET environment and tools used in this research includes the database - Microsoft SQL Server 2008; web application server - Microsoft .NET Framework 3.5; web server – IIS 6 (Windows Server 2003); user interface platform – Microsoft ASP.NET; data access – Microsoft Enterprise Library 4.0 for Data Access and Logging; security – Corporate Web Security (CWS) Utilities; mapping solution – Microsoft Mapping Solution; firewall – ASA document to determine the strength of application, it needs to pass the highest security test to be accessible through Intranet; integrated development environment (IDE) – Visual Studio 2008; and software configuration management – ChangeManDS that is optional for development but required for deployment.

The Client Login page is used to enter the user credentials like email and the Password. If the entered username and password in correct then the access is given to the next page. If the entered email and password are wrong then alert is shown to enter correct email and password.
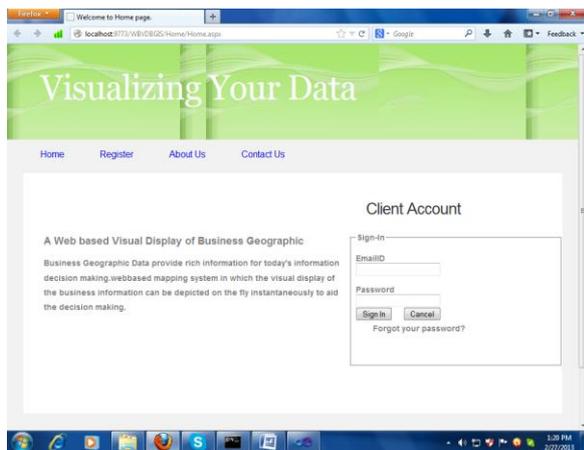
Fig.1 Client Login

Registration Page is used for creating new user login. For registration the user has to enter First Name, Middle Name, Last Name, Email, Password, Confirm Password and Organization. Click the submit button. If the Registration is Success "Successfully registered" message is shown.
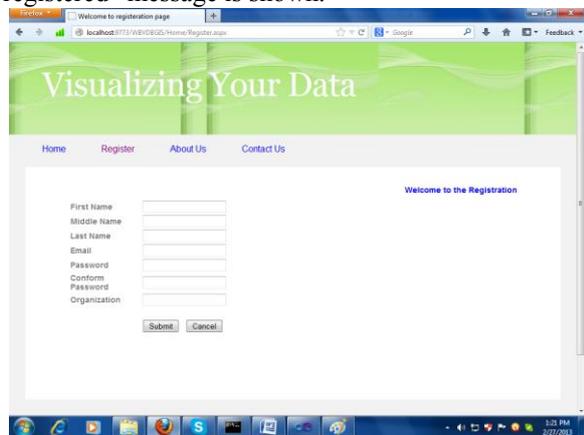

Fig .2 Registration Page

BingMap is used to display maps based on the excel sheet uploaded to the Maps. The AJAX and Silverlight site share the following features: Road View, Aerial View, Bird's-Eye View, Sharing Maps, People/Business/Location Search, Building Footprints, Driving Directions, and Walking Directions.
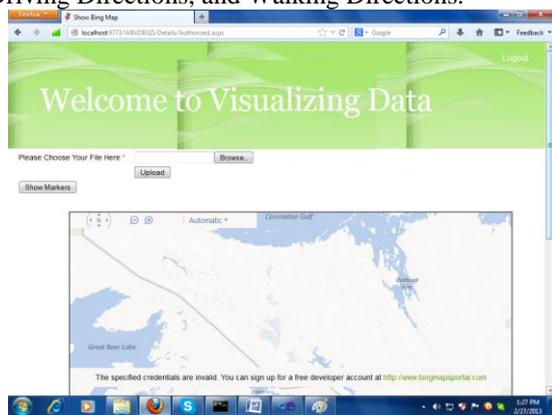

Fig.3 BingMap

Browse the Excel file with the location and upload it to the server based on the locations in the excel file the places are displayed with the markers .Each location have a different marker.
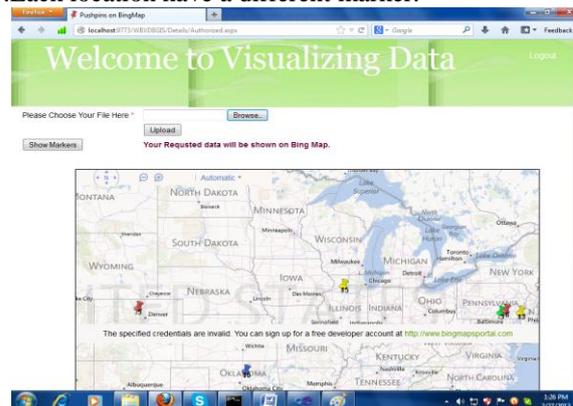

Fig.4 Markers in Map

Each Marker displayed at a location has a particular number with that location.

VII. CONCLUSION

Wireless intelligent information systems and cloud computing as the umbra platform for SaaS (Software as a Service) on SOA has gain increased momentum recently in business information systems. The system we developed for the visual display of the business geographic data can be a part of the corporate cloud computing where the end user can access the data and software tools in the cloud without the concerning of the levels of details and sensitive data can be viewed based on preset rules.. Our system showed that the web-based mapping of the valuable business data is reliable, dependable, efficient, and secure for the applications of business information decision making.

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P.Srikanth received the Master Of Computer Application (M C A) from,LB PG CENTER Warangal, A.P, India. Currently doing M.tech in Computer Science & Engineering at SR Engineering College, Warangal, India. Research interests include Data Mining and Data Warehousing.

Deepika Vodnala is currently working as an Assistant Professor at the Department of Computer Science and Engineering in SR Engineering College (Autonomous**,** affiliated to JNTU Hyderabad), Warangal, Andhra Pradesh, India. She is pursuing Ph.D. in the area of Mobile ad-hoc networks in GITAM University, Hyderabad, Andhra Pradesh, India. She received M.Tech degree in the stream of Software Engineering from Ramappa Engineering College (affiliated to JNTU Hyderabad), Warangal. She has the teaching experience of 4 years. Her areas of interest are Mobile Ad-hoc Networks and Wireless sensor Networks.